Supply Side Logistics Workshop

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Agenda

- Deliverables Associated with Supply Side Activities
- Definition of General Activities
- Discussion of Each Element
- A snapshot of Maricopa County
- Conclusions
- Project Management Plan Revision
Deliverables

● Targeted Regions and Partners Identification
● Assessment of Supply Logistics and Infrastructure
● Assessment of Current and Projected Demand Logistics
● Open Access Planting and Planning Module
● Beta Prototype of Supply Side Platform
Definition of General Activities

**Targeted region and partners identification**
This involves the discovery of regions and collaborators that would be ideal for the implementation of the TERRSC.

**Assessment of Supply Logistics and Infrastructure**
This speaks to the process of inquiring about and documenting the supply side service providers along with their respective costs and capacities.

**Assessment of current and projected demand logistics**
This covers identification of current services and providers on the demand side, and discovering/creating new services that fit the requirements of the TERRSC.

**Open access Planting Module**
Platform that provides information to growers as regards what to grow and when to grow, for optimal results.

**Beta prototype supply side platform**
Central platform with market intelligence, agronomic potential, planting and planning models fully integrated.
Elements

- Precooling/Cold Chain/Shelf-Life Preservation
- Processing
- Coordination
- Routing
- Packing
- Capacity Analysis (Initial Assessment)
Precooling and the Cold-Chain

**Issues to Consider**

- Current cold chain services available to small growers in identified regions
- Associated cost of cold chain services in identified regions and access small growers have to these services
- Pre-cooling technologies adopted by small growers in identified regions (Room cooling, vacuum cooling, forced air cooling, Hydro-cooling)

Critical refrigeration steps required to keep produce fresh and safe before arrival at point of sale
Issues to Consider

- Identification of processing service providers in an identified region

- Key processing operations engaged in by small growers to increase value of produce for a targeted region

- Associated costs and accessibility to small growers

- Modified Atmosphere packing and alternative packaging options for TERRSC
Coordination falls to the agent designated as the “Supply side articulator”

Key factors to consider concerning coordination are:

- Profile of a possible Supply side articulator
- Is there someone currently filling this role in the traditional Supply chain and if yes what are they doing wrong?
- Business case to entice potential articulators
Due to size of growers in the supply chain, there would be a need for the implementation of a “milk run” system in picking up fresh produce from farms/pickup sites.

**Issues**
- Refrigerated Transport service providers willing and able to perform milk runs
- Available capacities and associated costs of refrigerated transport
- Leveraging Dry Trucks retrofitted with special packaging to allow for temperature-controlled storage of fresh produce
- Implementing demand side solutions to the supply side: regulations to be aware of (Uber freight et al)
Capacity Analysis

Estimating costs and capacities of supply logistic services in an identified region is key to the operation of the developed supply side platform.

Issues

- Estimating accurately associated cost and capacities of logistics services for an identified region (Cold storage, cross docking, packaging, etc.)

- Minimum volume of produce logistic service providers are willing to handle
Supply Side Assessment
Objective of the supply side assessment

- Determine the readiness of any region to participate in the technology enabled rapid response fresh food supply chain.
- Define the minimum level of logistic infrastructure required to kickstart the project in any region.
- Cluster growers based on profile and provide actionable recommendations on needed steps to meet minimum participation requirements.
- Identify challenges faced by small growers in a region of interest.
Stages of the supply side assessment

1. Develop assessment criteria
2. Develop assessment methodology
3. Implement methodology to assess a region
4. Make decision if region is ready or not
## Assessment Criteria

<table>
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<tr>
<th>Grower specific information</th>
<th>Land Zone Information</th>
<th>Logistic service providers information</th>
<th>Crop Specifics</th>
<th>Regulations and Business Practices</th>
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<tr>
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<td>Temperature</td>
<td>precooling facilities</td>
<td>Storage Requirements</td>
<td>Contracting</td>
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<tr>
<td>Expertise of growers</td>
<td>Precipitation</td>
<td>transport providers/brokers</td>
<td>Shelf Life</td>
<td>Value Chain</td>
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<tr>
<td>Business Model</td>
<td>Quality of soil</td>
<td>Cross-Docking consolidation Facilities</td>
<td>Yield Estimations</td>
<td>Marketing Standards</td>
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<td>Capital Source</td>
<td>Labor availability</td>
<td>collection fleets</td>
<td>Compatibility Requirements</td>
<td>Handling and Packaging</td>
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<tr>
<td>Level of Association</td>
<td>Phytosanitary Conditions</td>
<td>cold warehouses</td>
<td>Ethylene production</td>
<td>Access to Capital</td>
</tr>
<tr>
<td>Infrastructure related to growing fresh produce, precooling, processing, packaging</td>
<td>Water availability</td>
<td>pre-cutting facilities</td>
<td>Planting costs and water requirements</td>
<td>Chemicals/Processes Used</td>
</tr>
</tbody>
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ASU Arizona State University

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MARICOPA COUNTY

• One of 15 counties in Arizona
• Stretches 9,224 square miles
• Arizona’s capital city lies within it
• As of 2017 NASS Census- 1874 farm operations
Snapshot of Maricopa

- Total Land in Farms in Maricopa county equals 474,438 acres which is approximately 8% of the available land acreage in Maricopa.

- As of 2017 there were 1874 farm operations in Maricopa with an average size of farm being 253 acres.

- Size of farms vary from as little as 1 to as large as in excess of 2000 acres in size.
Based on our category of interest (small growers) we can see that generally there has been a reduction in number of growers in Maricopa county.

However there was a slight increase in numbers of very large growers (>2000 acres)

Total farm Acres operated decreased by just ~0.3% despite a 24% decrease in the number of farm operations. This points to large farm operations buying out smaller ones.
Farm Labor is key to any farm operation

A total of 1008 farm operations hired workers in 2012 and a total of 651 farm operations hired workers for 2017.

Generally farm labor hired reduced across all categories
Asset in this context refers to the value of the farmland and buildings on the farm.

A clear bifurcation exists at the $1,000,000 Asset value mark.

Lower Asset category farmers reduced in numbers while higher asset category farmers increased.
Snapshot of Maricopa

- Farm sales refer broadly to all farm products and no specific category (Livestock, crops, et al)

- Interesting to note that the largest category in terms of sales are farms that recorded sales less than a $1000
Snapshot of Maricopa

- 456 farm operations in Yuma as against 1874 farm operations in Maricopa.

- Farm operations across relevant acreage categories is lower in Yuma as compared to Maricopa.
Snapshot of Maricopa

- Yuma reported fewer farm operations across all asset value categories
- Assets cover Farm-land and buildings
- Yuma recorded a total of 107,908 acres of vegetables harvested from 64 farm operations sales of $782,293,000.
- This represented almost a 400% increase in acreage harvested and sales as compared to Maricopa and
Project Management Plan Revision

- Re-evaluate approach to estimating cost and capacities of logistic service providers
- Concurrently access current and future projected demand logistics alongside current assessment of supply side
Thank you.
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